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EXAMINER


GOLD, AVI M

ART UNIT PAPER NUMBER

2157

DATE MAILED: 12/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s) 	
	09/879,809	HARTSELL ET AL.	
	Examiner	Art Unit	
	Avi Gold	2157	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-110 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-110 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/15/02, 6/25/02</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This action is responsive to the application filed June 12, 2001. Claims 1-110 are pending. Claims 1-110 represent a systems and method for resource tracking in information management environments.

Specification

1. The disclosure is objected to because of the following informalities: status of related applications needs to be updated. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-14, 17-95, 97, 98, 100-110 are rejected under 35 U.S.C. 102(e) as being anticipated by Starnes et al., U.S. Patent No. 6,144,996.

Starnes teaches the invention as claimed including accelerated retrieval of content information over a network (see abstract).

Regarding claims 1, 26, 59, 85, and 107, Starnes teaches a method of providing differentiated service, comprising at least one of differentially monitoring resource consumption associated with information management within an information management system, differentially monitoring system performance associated with information management within an information management system, or a combination thereof (col. 6, lines 14-18, Starnes discloses monitoring utilization of processing resources and monitoring performance of the proxy system).

Regarding claims 2, 27, and 86, Starnes teaches the method of claim 1, wherein said method further comprises differentially monitoring one or more system performance parameters associated with information management within an information management system (col. 7, lines 25-30, Starnes discloses monitoring performance of the acceleration server).

Regarding claims 3, 44, 70, and 108, Starnes teaches the method of claim 1, wherein said method further comprises providing said differentiated service in an information management system having a plurality of processing engines that are distributively interconnected (col. 6, lines 38-39, Starnes discloses a proxy server and acceleration server coupled).

Regarding claims 4, 22, 45, 55, 71, 81, 89, 103, and 109, Starnes teaches the method of claim 3, wherein said information management system comprises a content

delivery system, and wherein said plurality of processing engines comprise a system management processing engine, a storage management processing engine, and an application processing engine (col. 6, lines 40-41, Starnes discloses content delivery with the proxy system, col. 6, lines 50-54, the proxy server managing a request, col. 6, lines 57-60, the content server passing data to the proxy server, col. 6, lines 38-39, the acceleration server coupled to the Internet).

Regarding claim 5, Starnes teaches the method of claim 3, wherein said information management system comprises a network endpoint information management system (col. 6, lines 40-46, Starnes discloses a content delivery system).

Regarding claims 6, 23, 46, 56, 72, 82, 90, 104, and 110, Starnes teaches the method of claim 3, wherein said information management system comprises a network endpoint content delivery system (col. 6, lines 40-46).

Regarding claim 7, Starnes teaches the method of claim 3, wherein said information management system comprises:

a deterministic system architecture comprising a plurality of processing engines that are distributively interconnected (col. 6, lines 50-60, Starnes discloses determination of what server is used to handle the request); and

a differentiated service infrastructure in communication with said operating system (col. 6, lines 50-60, Starnes discloses the use of different servers).

Regarding claim 8, Starnes teaches the method of 7, wherein said system further comprises an operating system in communication with said deterministic system architecture; wherein said deterministic system architecture further comprises deterministic system software in communication with said operating system and having state knowledge of at least one of resource utilization within said architecture, system performance parameters within said architecture, or a combination thereof; and wherein said method further comprises using said deterministic system software to deterministically control interaction between said distributively interconnected processing engines in response to communication received from said operating system in order to dynamically adjust information management processing behavior based on at least one of said monitored resource consumption, monitored system performance, or a combination thereof (col. 6, lines 14-18, 50-60, Starnes discloses the proxy server determining where a request can be handled).

Regarding claim 9, Starnes teaches the method of claim 8, wherein said method further comprises differentially monitoring at least one of said resource consumption, system performance, or combination thereof based at least in part on one or system service parameters associated with said information management; and dynamically adjusting information management processing behavior to bring system resource consumption into adherence with said one or more system service parameters (col. 6,

Art Unit: 2157

lines 50-67, Starnes disclose the proxy server trying to get an improved response time and avoiding sluggish Internet).

Regarding claim 10, Starnes teaches the method of claim 7, wherein one or more of said processing engines comprises a monitoring agent capable of monitoring resource consumption within said processing engine, performance within said processing engine, or a combination thereof; and wherein said method further comprises using said monitoring agent to monitor resource consumption within said processing engine, monitor performance within said processing engine, or a combination thereof (col. 6, lines 14-18, 61-67, Starnes discloses the proxy server avoiding sluggish Internet).

Regarding claim 11, Starnes teaches the method of claim 9, wherein said deterministic system architecture further comprises a system monitor in communication with said monitoring agent; and wherein said method further comprises:

using said system monitor to communicate with said monitoring agent so as to monitor resource consumption within said processing engine, monitor performance within said processing engine, or a combination thereof (col. 6, lines 14-18); and

using said system monitor to perform system management based on at least one of said monitored resource consumption, monitored performance, or a combination thereof (col. 6, lines 61-67).

Regarding claim 12, Starnes teaches the method of claim 9, wherein said system architecture supports system calls to OS-extensions to determine one or more characteristics associated with one or more of said processing engines; wherein said characteristics comprise at least one of resource utilization parameters, system performance parameters, or a combination thereof; and wherein said method further comprises differentially monitoring said characteristics by making system calls to OS-extensions (col. 6, lines 61-67, col. 7, lines 41-45, Starnes discloses the use of a proxy filter for monitoring resource usage).

Regarding claim 13, Starnes teaches the method of claim 12, wherein said system further comprises at least one application in communication with said operating system; and wherein said method further comprises differentially monitoring said characteristics by using said application to make calls into said operating system indicative of the availability of necessary resources in said system architecture to support information management (col. 6, lines 61-67, col. 7, lines 41-45, Starnes discloses the filter filtering out requests it can deliver in an accelerated fashion).

Regarding claim 14, Starnes teaches the method of claim 12, wherein said operating system is capable of direct deterministic communication with said deterministic system architecture, and wherein said method further comprises using said operating system to make calls indicative of the availability of necessary resources

in said system architecture to support said information management (col. 6, lines 61-67, col. 7, lines 41-45).

Regarding claim 17, Starnes teaches the method of claim 7, wherein said method further comprises using said differentiated service infrastructure to at least one of differentially monitor said resource consumption associated with information management, to differentially monitor system performance associated with information management, or a combination thereof (col. 6, lines 14-18, 61-67).

Regarding claim 18, Starnes teaches the method of claim 17, wherein said method further comprises dynamically adjusting performance of at least one information manipulation task related to said information management based on at least one of said monitored resource consumption, said monitored system performance, or a combination thereof (col. 6, lines 50-67).

Regarding claim 19, Starnes teaches the method of claim 17, further comprising configuring a new information management system or re-configuring an existing information management system based at least in part on said monitored resource consumption, said monitored system performance, or a combination thereof (col. 6, lines 50-67).

Regarding claims 20, 53, 79, and 87, Starnes teaches the method of claim 1, wherein said information management system is coupled to a network at a point outside a core of said network (col. 6, lines 40-46).

Regarding claims 21, 54, 80, and 88, Starnes teaches the method of claim 1, wherein said information management system comprises a network endpoint information management system (col. 6, lines 40-46).

Regarding claims 24, 57, 83, and 105, Starnes teaches the method of claim 1, wherein said differentiated service comprises differentiated business service (col. 6, lines 40-46).

Regarding claims 25, 58, 84, and 106, Starnes teaches the method of claim 1, wherein said differentiated service comprises differentiated information service (col. 6, lines 40-46).

Regarding claims 28 and 60, Starnes teaches the method of claim 26, wherein said method comprises differentially monitoring said system performance on at least one of a real time basis, historical basis, or a combination thereof (col. 6, lines 14-18, Starnes discloses monitoring the system during processing which is in real time).

Regarding claims 29 and 91, Starnes teaches the method of claim 27, wherein said one or more system performance parameters comprise at least one of resource availability, resource usage, adherence to provisioned system service parameters, content usage patterns, time of day access patterns, or a combination thereof (col. 7, lines 25-30).

Regarding claim 30, Starnes teaches the method of claim 27, further comprising monitoring said system performance parameters in a manner based at least in part on one or more class identification parameters associated with said information management, based at least in part on one or system service parameters associated with said information management, or a combination thereof (col. 7, lines 25-30).

Regarding claim 31, Starnes teaches the method of claim 30, wherein said information system comprises a content delivery system; wherein said information management comprises content delivery; and wherein said method comprises monitoring at least one of information related to operating or usage characteristics of an content delivery system, subsystems or resources; monitoring processing of individual content delivery requests or classes of content delivery requests, or a combination thereof; wherein said one or more class identification parameters comprise at least one of identity or class of user or request, type of request, resource requirement associated with fulfillment of a particular request, or a combination thereof, wherein said system service parameters comprise at least one of aggregate bandwidth ceiling, service level

Art Unit: 2157

agreement policy, admission control policy, processing resource allocation policy, storage resource allocation policy, or a combination thereof; and wherein said one or more system performance parameters comprise at least one of resource availability, resource usage, adherence to provisioned system service parameters, content usage patterns, time of day access patterns, or a combination thereof (col. 6, lines 40-67).

Regarding claim 32, Starnes teaches the method of claim 27, wherein said method comprises monitoring at least one of operating or usage characteristics of an information management system, subsystems or resources; monitoring information related to processing of individual information management requests or classes of information management requests; or a combination thereof (col. 6, lines 14-18).

Regarding claim 33, Starnes teaches the method of claim 27, wherein said method comprises monitoring at least one of SLA conformance information, performance level information, or a combination thereof (col. 6, lines 50-54).

Regarding claim 34, Starnes teaches the method of claim 27, wherein said method comprises monitoring at least one of system resource utilization metrics, application performance data, SLA performance data, or a combination thereof (col. 6, lines 50-54, 61-67).

Regarding claim 35, Starnes teaches the method of claim 27, wherein said method further comprises reporting said monitored information for further processing; wherein said monitored information is reported to a subsystem of said system, to another system, or a combination thereof (col. 6, lines 50-54, 61-67).

Regarding claim 36, Starnes teaches the method of claim 27, wherein said method further comprises reporting said monitored information to one or more physically remote located systems or external entities for further processing (col. 6, lines 50-60).

Regarding claim 37, Starnes teaches the method of claim 27, wherein said method comprises monitoring consumption or use of one or more system resources (col. 6, lines 50-67).

Regarding claims 38 and 92, Starnes teaches the method of claim 27, wherein said method comprises monitoring said system performance parameters on at least one of per-subscriber basis, per-request basis, per transaction basis, per-class basis, per-tenant basis, per use basis, per relative resource consumption basis, per percentage-service guarantee basis, per time of day access basis, or a combination thereof (col. 6, lines 50-60, Starnes discloses a request being handled).

Regarding claim 39, Starnes teaches the method of claim 27, wherein said information system comprises a content delivery system; wherein said information management comprises content delivery; and wherein said method comprises monitoring at least one of allocated sustained and peak bandwidth per subscriber, percentage of time at or below sustained bandwidth level, percentage of time above sustained bandwidth level and at or below peak bandwidth level, or a combination thereof (col. 6, lines 50-67, Starnes discloses avoiding sluggish Internet).

Regarding claim 40, Starnes teaches the method of claim 27, wherein said information system comprises a content delivery system; wherein said information management comprises content delivery; and wherein said method comprises monitoring identity or disposition of requests for content (col. 6, lines 41-46).

Regarding claim 41, Starnes teaches the method of claim 40, wherein said method comprises monitoring at least one of record of content requests honored, record of content requests rejected, record of content requests by subscriber, record of individual content request start time and corresponding content request fulfillment finish time, or a combination thereof (col. 7, lines 10-33, Starnes discloses a proxy system monitoring all request on the server and using that to manage the acceleration server).

Regarding claim 42, Starnes teaches the method of claim 27, further comprising dynamically adjusting information management processing behavior based on said one or more monitored system performance parameters (col. 6, lines 50-67).

Regarding claim 43, Starnes teaches the method of claim 30, further comprising monitoring said system performance parameters in a manner based at least in part on one or more system service parameters associated with said information management; and dynamically adjusting information management processing behavior based on said one or more monitored system performance parameters to bring system performance into adherence with said one or more of said system service parameters (col. 6, lines 50-67).

Regarding claim 47, Starnes teaches the method of claim 44, wherein said plurality of distributively interconnected processing engines comprises a system management processing engine, and wherein said method further comprises using said system management processing engine to monitor said one or more system performance parameters (col. 6, lines 14-18, 50-60).

Regarding claims 48, 73, and 74, Starnes teaches the method of claim 44, wherein one or more of said processing engines comprises a monitoring agent capable of monitoring resource consumption within or by said processing engines, and wherein said system architecture further comprises a system monitor in communication with said

monitoring agent that is capable of performing system management to differentially monitor said resource consumption (col. 6, lines 14-18, 50-67, col. 7, lines 25-30).

Regarding claims 49 and 75, Starnes teaches the method of claim 44, wherein at least one of said plurality of processing engines is located physically remote from at least one other of said plurality of processing engines; and wherein two or more of said plurality of processing engines comprise at least one of separate components of a data center, separate components of a cluster of information management systems, separate processing engines that are distributively interconnected across a network, or a combination thereof (col. 6, lines 14-18, 50-60).

Regarding claims 50 and 76, Starnes teaches the method of claim 49, wherein said plurality of processing engines are distributively interconnected across a network, and include a system management processing engine and at least one of a storage management processing engine, an application processing engine, or a combination thereof; wherein said system management processing engine is located at a physically remote location from at least one of said storage management processing engine or said application processing engine; and wherein said method further comprises using said system management processing engine to monitor said system performance parameters (col. 6, lines 14-18, 50-60).

Regarding claims 51 and 77, Starnes teaches the method of claim 27, wherein said information management system comprises at least one of a content delivery node, application serving node, or a combination thereof (col. 6, lines 40-46).

Regarding claims 52 and 78, Starnes teaches the method of claim 27, wherein said information management system comprises at least one of an origin storage node, an edge storage node, an origin application serving node, an edge application serving node, an edge caching node, an edge content replication node, or a combination thereof (col. 6, lines 40-46, Starnes discloses content retrieved from content server).

Regarding claim 61, Starnes teaches the method of claim 59, wherein said method further comprises monitoring shared system resource consumption associated with at least one of a particular request for information management, a particular user requesting information management, or a combination thereof (col. 6, lines 14-18, 50-54, Starnes discloses monitoring of resources used in requests).

Regarding claim 62, Starnes teaches the method of claim 59, wherein said method further comprises monitoring shared system resource consumption associated with a particular information manipulation task (col. 6, lines 50-60, Starnes discloses a request for retrieval of data).

Regarding claim 63, Starnes teaches the method of claim 59, further comprising monitoring said resource consumption in a manner based at least in part on one or more class identification parameters associated with said information management, based at least in part on one or system service parameters associated with said information management, or a combination thereof (col. 6, lines 50-67).

Regarding claim 64, Starnes teaches the method of claim 59, wherein said monitored resource consumption comprises at least one of application level information, system resource level information, or a combination thereof (col. 6, lines 50-67).

Regarding claim 65, Starnes teaches the method of claim 61, wherein said information system comprises a content delivery system; wherein said information management comprises content delivery; and wherein said monitoring comprises monitoring at least one of CPU processing cycle consumption, storage block retrieval consumption, system bandwidth consumption, or a combination thereof (col. 6, lines 50-67).

Regarding claim 66, Starnes teaches the method of claim 59, wherein said method further comprises reporting said monitored information for further processing; wherein said monitored information is reported to a subsystem of said system, to another system, or a combination thereof (col. 6, lines 50-67).

Regarding claim 67, Starnes teaches the method of claim 59, wherein said method further comprises reporting said monitored information to one or more physically remote located systems or external entities for further processing (col. 6, lines 50-67).

Regarding claim 68, Starnes teaches the method of claim 59, wherein said method further comprises dynamically adjusting information management processing behavior based on said monitored resource consumption (col. 6, lines 50-67).

Regarding claim 69, Starnes teaches the method of claim 63, wherein said method further comprises monitoring said resource consumption based at least in part on one or system service parameters associated with said information management; and dynamically adjusting information management processing behavior based on said monitored resource consumption to bring system resource consumption into adherence with said one or more system service parameters (col. 6, lines 50-67).

Regarding claim 93, Starnes teaches the method of claim 91, wherein said information management system manages information for two or more tenants, wherein at least one of said tenants supports two or more classes of service, and wherein at least one of said classes of service is subscribed to by two or more subscribers; and wherein said method comprises monitoring said system performance parameters on

each of a system basis, per tenant basis, per class basis, and per subscriber basis (col. 7, lines 10-30, Starnes discloses multiple users making request that are monitored).

Regarding claim 94, Starnes teaches the method of claim 91, wherein said method comprises monitoring said system performance parameters at the level of a particular subscriber of a particular multiple-subscriber class of a particular multiple-class tenant of a particular multiple-tenant system (col. 7, lines 10-30).

Regarding claim 95, Starnes teaches the method of claim 92, wherein said method further comprises generating service level performance verification information based on said monitored system performance parameters (col. 8, lines 66-67, col. 9, lines 1-11, Starnes discloses monitoring of own level of service and minimal level of service).

Regarding claim 97, Starnes teaches the method of claim 91, wherein said method further comprises reporting said monitored system performance parameters to one or more physically remote located systems or external entities for further processing (col. 6, lines 50-67, col. 7, lines 10-30).

Regarding claim 98, Starnes teaches the method of claim 97, wherein said further processing comprises generating service level performance verification

Art Unit: 2157

information based on said monitored system performance parameters (col. 8, lines 66-67, col. 9, lines 1-11).

Regarding claim 100, Starnes teaches the method of claim 85, further comprising dynamically adjusting information management processing behavior based on said one or more monitored system performance parameters (col. 6, lines 50-67).

Regarding claim 101, Starnes teaches the method of claim 85, further comprising dynamically adjusting information management processing behavior based on said monitored system performance to bring said system performance into adherence with one or more service level policies (col. 6, lines 50-67).

Regarding claim 102, Starnes teaches the method of claim 101, wherein said dynamically adjusting information management processing behavior comprises managing at least one of system admission control, resource allocation within said system, information request queue prioritization, transfer of information requests to other systems, or a combination thereof (col. 6, lines 50-67).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2157

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Starnes further in view of Frankel et al., U.S. Patent No. 6,560,722.

Starnes teaches the invention substantially as claimed including accelerated retrieval of content information over a network (see abstract).

As to claim 15, Starnes teaches the method of claim 13.

Starnes fails to teach the limitation further including a deterministic system BIOS that provides a communication interface between said system architecture and said operating system, said deterministic system BIOS capable of managing system calls made to processing engines of said system architecture from said at least one application.

However, Frankel teaches developing and deploying real-time high performance applications with DSPs (see abstract). Frankel teaches the use of deterministic BIOS making system calls (col. 5, lines 29-35, 54-60).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Starnes in view of Frankel to use a deterministic system BIOS. One would be motivated to do so because it enables applications to utilize architecture in a deterministic manner.

Regarding claim 16, Starnes and Frankel teach the method of claim 15, wherein said deterministic system bios is capable of responding to application requests for

Art Unit: 2157

resources with availability information, rerouting information, or SLA choice information (col. 2, lines 63-67, Frankel discloses the BIOS responding to hardware interrupts).

6. Claims 96 and 99 are rejected under 35 U.S.C. 103(a) as being unpatentable over Starnes further in view of Rahman, U.S. Patent No. 6,445,916.

Starnes teaches the invention substantially as claimed including accelerated retrieval of content information over a network (see abstract).

As to claims 96 and 99, Starnes teaches the method of claims 95 and 98.

Starnes fails to teach the limitation further including generating billing information based at least in part on said service level performance verification information.

However, Rahman teaches a system and method for evaluating quality of service in wireless communication system for voice traffic, data traffic, or both (see abstract).

Rahman teaches the use of a billing record generated in a dynamic quality of service environment (col. 2, lines 21-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Starnes in view of Rahman to generate billing information based on performance. One would be motivated to do so because its enables the price of the bill to reflect the quality of service thus being more appealing to users.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Pat. No. 5,572,672 to Dewitt et al.

U.S. Pat. No. 5,819,033 to Caccavale

U.S. Pat. No. 6,691,067 to Ding et al.

U.S. Pat. No. 6,425,005 to Dugan et al.

U.S. Pat. No. 6,125,390 to Touboul

U.S. Pat. No. 6,091,725 to Cheriton et al.

U.S. Pat. No. 6,049,798 to Bishop et al.

U.S. Pat. No. 5,968,116 to Day, II et al.

U.S. Pat. No. 5,951,644 to Creemer

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Avi Gold whose telephone number is 571-272-4002.

The examiner can normally be reached on M-F 8:00-5:30 (1st Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on 571-272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Avi Gold
Patent Examiner
Art Unit 2157

AMG



SALEH NAJJAR
PRIMARY EXAMINER